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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,523	01/08/2004	Eric Lawrence Barsness	ROC920030328US1	9847

30206 7590 10/29/2007
IBM CORPORATION
ROCHESTER IP LAW DEPT. 917
3605 HIGHWAY 52 NORTH
ROCHESTER, MN 55901-7829

EXAMINER

PYO, MONICA M

ART UNIT	PAPER NUMBER
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2161

MAIL DATE	DELIVERY MODE
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10/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/753,523	Applicant(s) BARSNESS ET AL.	
	Examiner Monica M. Pyo	Art Unit 2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) 3-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/14/2007 has been entered.
2. Claims 1-15 and 17-19 are currently pending in this application. Claims 1, 17 and 19 are independent claims and claims 3-15 are withdrawn from consideration. In the Amendment filed 8/14/2007, claims 1, 17 and 19 are amended.

Claim Objections

3. Claim amendment received on 8/14/2007. The changes are acknowledged and accepted. Therefore, the claim objections made in a prior Office Action are withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,556,990 issued to Lane (hereinafter) in view of U.S. Patent No. 5,745,745 issued to Tada et al. (hereinafter Tada).

Regarding Claim 1, Lane discloses a method for indexing a database table, said table comprising a column of values, the method comprising the steps of:

A). identifying a plurality of substrings, each substring comprising one or more characters, as the sub-string “CDE” is used to find the corresponding sub-string (Lane: col. 5, lns. 18-33); and

B). for each substring creating a corresponding index over the column, wherein each corresponding index includes a respective entry for each value in the column, the respective entry for a particular value being indicative of whether the corresponding substring occurs in that particular value, as the sub-string within the relational database is used to perform a lookup in sub-string index (Lane: col. 5, lns. 18-34, 38-41 and 47-66; col. 6, lns. 17-25).

Lane does not explicitly disclose:

B). such that a plurality of substring-specific indices, each corresponding to a particular substring from among the plurality of substrings, are created for the same column.

However, Tada discloses:

B). such that a plurality of substring-specific indices, each corresponding to a particular substring from among the plurality of substrings, are created for the same column, as illustrated in the Character Occurrence Bitmap table (Tada: col. 2, lns. 51-col. 3, lns. 19; col. 10, lns. 12-21; col. 11, lns. 48-58; fig. 2).

It would have been obvious to a person with ordinary skill in the art at the time of invention to modify the teachings of Lane with the teachings of Tada to utilize the Character

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Occurrence Bitmap table to enhance searching for a term by extracting the string into characters (Tada: col. 1, lns. 21-39).

Regarding Claim 2, Lane and Tada disclose the method wherein the respective entry for the particular value is indicative of a number of occurrences of the corresponding substring in that particular value (Lane: col. 5, lns. 61-col. 6, lns. 13) and (Tada: col. 11, lns. 49-66).

6. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lane in view of Tada as applied to claims 1-2 above, in view of U.S. Patent No. 6,785,677 issued to Fritchman (hereinafter Fritchman).

Regarding Claims 17 and 19, Lane discloses an apparatus for executing a query on a database table, said table comprising values, the apparatus comprising:

- A). **at least one processor**, as a processor (Lane: col. 4, lns. 1-6);
- B). **a memory coupled with the at least one processor**, as a storage device in a computer system (Lane: col. 3, lns. 60-col. 4, lns. 6);
- C). **stored within said memory and each index includes a respective entry for each value in the column, the respective entry in each index indicative of whether a corresponding substring to which such index corresponds occurs within the value for which the respective entry is included**, as the sub-string within the relational database is used to perform a lookup in sub-string index (Lane: col. 3, lns. 52-67; col. 5, lns. 28-41; col. 5, lns. 47- col. 6, lns. 25); **and**

D). a program code residing in the memory and executed by the at least one processor, the program code configured to scan the values of the table based, as the computer readable storage medium stores a program code and the look-up process (Lane: col. 3, lns. 23-35; col. 5, lns. 23-33)

Lane does not explicitly disclose:

C). a plurality of substring-specific indices and corresponding to the same column in said table, wherein each index corresponds to a particular one of a plurality of substrings;

D). a combination of the plurality of indices.

However, Tada discloses:

C). a plurality of substring-specific indices and corresponding to the same column in said table, wherein each index corresponds to a particular one of a plurality of substrings, as illustrated in the Character Occurrence Bitmap table (Tada: col. 2, lns. 51-col. 3, lns. 19; col. 10, lns. 12-21; col. 11, lns. 48-58; fig. 2).

It would have been obvious to a person with ordinary skill in the art at the time of invention to modify the teachings of Lane with the teachings of Tada to utilize the Character Occurrence Bitmap table to enhance searching for a term by extracting the string into characters (Tada: col. 1, lns. 21-39).

Land and Tada do not explicitly disclose:

D). a combination of the plurality of indices.

However, Fritchman discloses:

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D). a combination of the plurality of indices, as a pattern string (Fritchman: col. 5, lns. 46-48).

It would have been obvious for a person with ordinary skill in the art to modify the teachings of Lane and Tada with the teaching of Fritchman to utilize the feature of matching characters occurring in the pattern within the string with the motivation to enhance determining whether a text string is a member of a set of strings or not (Fritchman: col. 2, lns. 37-49).

Regarding Claim 18, Lane and Tada and Fritchman disclose the apparatus wherein the program code is further configured to:

build a bitmap based on the plurality of indices, the bitmap having an element for each value of the column that is set based on the respective entries for that value from the plurality of indices (Tada: col. 2, lns. 51-col. 3, lns. 19; col. 10, lns. 12-21; col. 11, lns. 48-58; figs. 2 & 18).

Response to Arguments

7. Applicant's arguments with respect to claims 1-2 and 17-19 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

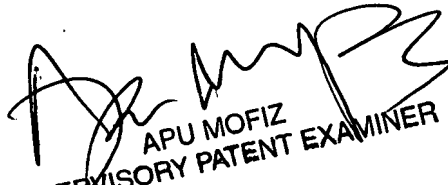
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica M. Pyo whose telephone number is 571-272-8192. The examiner can normally be reached on Mon & Thur 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached on 571-272-4080. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica M Pyo
Examiner
Art Unit 2161

mpyo
10/22/07


APU MOFIZ
SUPERVISORY PATENT EXAMINER